

CLAIMS

The invention claimed is:

1. An article conveying, guiding, and locating device, comprising:
 - a treadle including a web guide plate, and a guide strip being spaced greater than a thickness of a web from the web guide plate;
 - a web conveyor having a servo pick assembly and a servo helper assembly driven by a servo motor, the web conveyor configured to move a web of material and articles formed therein, the servo pick assembly being carried by the treadle;
 - an article detector carried by the treadle and operative to detect a location of an article in the web during movement of the web; and
 - a controller communicating with the servo motor and the article detector and operative to controllably regulate and synchronize operation of the servo pick assembly and the servo helper assembly in response to the detected location of the article, wherein the web conveyor includes a pair of wheels provided along each edge of the web, each pair of wheels include a drive wheel and a follower wheel coacting on opposite sides of the web, the drive wheel being driven by the servo motor under control of the controller;
 - wherein the treadle includes a knock lever mechanism having a knock lever arm configured to co-act with a stationary platen as the treadle is moved relative to the stationary platen during a severing operation so as to retract the follower wheel away from the drive wheel to release a web carried therebetween to enable lateral centering of articles carried in the web.

2. The device of claim 1, wherein the knock lever mechanism comprises a kinematic linkage having a center pivot, wherein the knock lever arm is provided at one end of the kinematic linkage, and wherein the drive wheel is provided at an opposite end of the kinematic linkage.

3. The device of claim 2, wherein a unique knock lever mechanism is provided along each edge of the web, and wherein each knock lever mechanism is configured to disengage each follower wheel from the respective drive wheel as the treadle is moved towards a stationary platen during a severing operation.

4. The device of claim 1, wherein the treadle further comprises:
a primary guide member provided in proximate association with the web guide plate; and
a secondary guide member spaced substantially further apart from the web guide plate relative to the primary guide member.

5. The device of claim 4, wherein the secondary guide member is configured to induce alignment of the articles with the web guide plate.

6. The device of claim 4, wherein the primary guide member and the secondary guide member are configured to be laterally adjusted relative to the web guide plate to accommodate changes to different die configurations.

7. The device of claim 4, wherein the primary guide member and the secondary guide member each comprise an attachment plate, the attachment plate includes a quick release adjustment collar having a lock arm configured to enable clamping and release of the adjustment collar.

8. The device of claim 7, wherein the primary guide member further comprises a clamp bar affixed to the attachment plate, the clamp bar further configured to support the guide strip.

9. The device of claim 8, wherein the secondary guide member further comprises a clamp bar affixed to the attachment plate.

10. An article conveying, guiding, and locating device, comprising:
a treadle including a web guide plate and a guide strip, the treadle including a knock lever mechanism;
a web conveyor having a servo pick assembly and a servo helper assembly driven by a servo motor, the web conveyor configured to move a web of material and articles formed in the web;
an article detector carried by the treadle and operative to detect a location of an article in the web during movement of the web; and
a controller communicating with the servo motor and the article detector and operative to controllably regulate and synchronize operation of the servo pick assembly and the servo helper assembly in response to the detected location of the article.

11. The device of claim 10, wherein the web conveyor comprises a pair of wheels provided along each edge of the web, and the pair of wheels include a drive wheel and a follower wheel coacting on opposite sides of the web, the drive wheel being driven by the servo motor under control of the controller.

12. The device of claim 11, wherein the knock lever mechanism comprises a knock lever arm configured to co-act with a stationary platen as the treadle is moved relative to the stationary platen during a severing operation so as to retract the follower wheel away from the drive wheel to release a web carried therebetween to enable lateral centering of articles carried in the web.

13. The device of claim 12, wherein the knock lever mechanism further comprises a kinematic linkage having a center pivot, and the knock lever arm is carried at one end of the kinematic linkage and a drive wheel is carried at an opposite end of the kinematic linkage.

14. The device of claim 10, wherein the guide strip is spaced from the guide plate by a distance greater than a thickness of a web of material.

15. The device of claim 10, wherein the servo pick assembly is carried by the treadle.

16. The device of claim 10, wherein the treadle further comprises a secondary guide strip spaced from the web guide plate by at least four thicknesses of the web, the secondary guide strip being spaced apart from the guide strip.

17. The device of claim 16, further comprising an article detector carried by at least one of the guide strip and the secondary guide strip and operative to detect a position of an article in the web by detecting a position of a protuberance in the web as the protuberance is conveyed between the guide strip and the secondary guide strip.

18. An article conveying, guiding, and locating device, comprising:
a web conveyor having a drive wheel and a follower wheel, the follower wheel being configured to co-rotate with the drive wheel to move a web therebetween; and
a knock lever mechanism having a lever arm configured to carry at least one of the drive wheel and the follower wheel, the lever arm configured to engage a platen as a treadle is moved relative to the platen during a severing operation, one of the drive wheel and the follower wheel being configured to be moved away from another of the drive wheel and the follower wheel to open up a gap therebetween to release a respective edge of the web during the severing operation to enable lateral centering of articles carried in the web.

19. The device of claim 18, wherein the knock lever mechanism comprises a kinematic linkage having a center pivot, wherein the lever arm is carried at one end of the kinematic linkage and a drive wheel is carried at an opposite end of the kinematic linkage.

20. The device of claim 19, wherein the knock lever mechanism is carried by the treadle, and the lever arm is configured to contact a die as the treadle is moved towards the platen carrying the die, and the follower wheel is configured to retract from the respective drive wheel in response to contact of the lever arm with the die.